UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: Proposals for Wetland Evaluation at Tyson's Dump Site DATE: SEP 9 '85

FROM: Elizabeth Rhoads E. Rhoads
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Site Response Section (3HW21)

In conjunction with staff from the Environmental Impact and Marine Policy Branch, I have reviewed the ROD, the Baker sampling proposal, and the ERM sampling proposal for the Tyson's Dump Site. After our site visit on August 29, I also consulted with Ron Preston and Dr. Roy Smith in the Environmental Services Division about the feasibility of using bioassays at the site to assess toxicity.

We determined that a significant portion of the area north of the railroad track was wetlands, although a detailed jurisdictional evaluation was not made. Plants indicative of wetland areas including cattail, purple loosestrife, red and silver maple, rushes, common rush, smart weed, and spice bush. The obvious wetland functions in the area are water storage, wildlife habitat, and passive recreation. The wetland may also be contributing to nutrient retention, food chain support, sediment trapping, and ground water discharge.

Listed below are comments on the two sampling proposals. Although both proposals have merits, neither proposal will adequately identify potential environmental impacts in the wetland/floodplain area. The Baker proposal includes a 2-day field reconnaissance and wetland classification, SG/ME toxicity tests, and three sediment bioassays with chemical analysis. The ERM proposal is less extensive and includes site reconnaissance and collection of 15 soil/sediment samples.

1. The field reconnaissance schemes in the final proposal should be sufficiently comprehensive to delineate the wetland boundaries should selected soil removal be chosen as a remedial action. If excavation is required, EMMB would probably recommend that these areas be restored. Restoration would entail recreating pre-excavation elevation, topsoil resurfacing, and selected reseeding. You should also be aware that jurisdictional evaluations (such as that proposed by Baker) are typically done by EMMB personnel. In this regard, the Baker proposal for wetland classification may be too extensive and the ERM proposal would probably be sufficient.

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2. Baker proposes acute bioassays on sediment ectuitriates collected at: a) the area near sample 840063, b) the small pond receiving drainage from the tributary approximately 300' west of the signal tower and c) an upstream Schuylkill River sediment sample. The ERM proposal does not include bioassays. At a minimum, a bioassay should be done at one location, i.e., the upgraded air stripper effluent.

Both acute and chronic bioassays will provide LC50's, however, the 7-day chronic growth test on Pimephales promelas should be used to assess the potential of long term toxicity. Because of its sensitivity, I recommend that the 7-day life cycle tests on Ceriodaphnia Sp. also be used.

In addition to these changes in methodology, I also recommend different sampling locations. As noted by FWS, vegetation was stressed at the first proposed location, however the stressed area is surrounded by a large pile of railroad ties. The presence of napthalene, phenanthrene, and pyrene in sample 840063 suggests that contamination may be partially a result of creosote in the railroad ties. Trichloropropane was detected in the sample and contamination may also be originating from onsite, however, the bioassay results will not distinguish between the sources of toxicity. I recommend, therefore, that the bioassay be done on sediments collected at the western edge of the pond.

The second proposed site is also unsuitable for similar reasons. The small impoundment is vegetatively stressed, however, it is largely within the railroad right-of-way which has obviously been sprayed with herbicides. I recommend that this sample be taken at sample locaion 840037 where trichloropropane was detected and where the influence of herbicides and oil runoff from the railroad bed is lessened.

The upstream sample is necessary as a control, however, the sample should not be taken from the Schuylkill River. A sediment sample from a similarly vegetated area west of the wetlands would be more representative. In addition, a chronic bioassay on the air stripper effluent after the process is upgraded is strongly recommended.

3. ERM proposes collection of 5 samples from the ponds and 10 samples from the remainder of the wetland/floodplain area. (Baker proposes no additional soil sampling). Assuming that the 10 sample locations are randomly selected over the 5 acres (approximately) of wetland/floodplain north of the swamp, hot spots would have to be of a radius greater than 31 meters (approximately) to have a 95% probability of detection.

If the purpose of the sampling is to identify all contaminated areas which may need to be excavated, then the additional soil samples in this area are sufficient in number. Because the two samples taken in the area outside of the swamp did not show TCP contamination, because of the potential ability of the wetland to trap sediments and filter pollutants and because of the hydrologic characteristics at the site, contamination is probably confined to the swamps, ponds, and drainage areas. Therefore, I do not think that additional soil samples are essential. The degree of contamination in the swamp and pond was documented in the RI and the additional 5 pond samples are probably not necessary.

Note also that ERM proposes analyses only for those organic compounds previously detected in the wetland area. Soil and sediment analyses should be for those compounds identified onsite and offsite.

4. Baker proposes SG/RE toxicity tests instead of bioaccumulation studies. EIMPB believes that plant and animal samples should be taken at the site to determine whether contaminants have entered the foodchain. (This sampling would only be applicable if an indicator compound, such as trichloropropane, were determined to bioaccumulate). We are assuming that the purpose of the additional wetland sampling is to collect data to support an action plan.

In the most simplistic scenario, if soils/sediments are contaiminated but wildlife is not, then contaminants appear to be relatively immobile and a "no action" plan may be justifiable. Alternatively, the presence of indicator compounds in wildlife indicates that contaminants have mobilized into the food chain and an "action" plan may be warranted.

The Baker proposal identifies three reasons for not performing these analyses. EIMPB's previous memo (dated 6/4/85) provides justification for this work and the following comments address the three items raised by Baker. First, although laboratory results may not always be correlated to biological impacts, the sampling can identify whether tissue levels are greater than background or offsite levels. Second, FWS routinely analyzes animal tissue (e.g., snapping turtles at Tinicum Marsh) and should be contacted for guidance on sampling and analytical methodology. Third, though EPA's primary concern is potential human health impacts, the maintenance and restoration of the native ecology should be adequately addressed during this process.

To identify these potential impacts we recommend the following types of samples be taken:

a) freshwater clams or molluscs taken at a location upstream and downstream of the site. Fish are not recommended because this area of the Schuylkill is closed to fishing because of high levels of pesticides in tissue.

b) three plant samples, preferably Carex sp., taken offsite, in the swamp area, and near the tributary receiving stripper effluent.

c) samples taken from resident carnivores at one location onsite and one location offsite. Suggested species are either the snapping turtle or shrew.

5. Because wetlands often play an important role in ground water discharge, continued monitoring at the four wells should be considered.

If you have any questions regarding these comments, please contact me. I would appreciate the opportunity to review the final work plan and provide any other assistance you may need for the site assessment.

cc: A. Ferdas (3HW21)
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